Post-Doctoral Fellow in Experimental Quantum Neuroscience

The Quantum Neuroscience research group at the University of Waterloo, Canada is seeking an outstanding applicant for a Post-Doctoral Fellowship with experience in electrophysiology and molecular neuroscience.

Motivated by growing interest in the possibility that quantum effects may be at play in neuroscience, the University of Waterloo Quantum Neuroscience research group is aiming to find experimental evidence of novel quantum effects across established mammalian models used in experimental neuroscience. Specifically, the project will focus on studying the effects lithium isotopes may have on the electrophysiological activity of rodent-derived brain tissue. The demonstration of a lithium isotope effect in brain activity will be of great interest in helping to shed light on its mode of action. Of particular interest, a lithium isotope effect on animal behaviour was previously reported by Sechzer et al. [DOI:10.1016/0006-3223(86)90308-2] and, more recently, by Ettenberg et al. [DOI:10.1016/j.pbb.2020.172875]. In addition, the Waterloo Team recently obtained experimental evidence for a lithium isotope effect on electrical responses of rodent brain tissue. The post-doctoral fellow will extend this work using electrophysiology and other biochemical and biophysical methods.

The Waterloo Quantum Neuroscience research team consists of four faculty members: Zoya Leonenko, Michel Gingras, John Mielke and Michael Beazely and 12 undergraduate and graduate students. The team adopts an interdisciplinary approach that brings together expertise in theoretical physics, experimental biophysics, molecular pharmacology and neuroscience. The Waterloo team is part of the International Quantum Brain Network and works on this project in collaboration with Matthew Fisher at the University of California at Santa Barbara and four other research laboratories and is funded by an industrial pharmaceutical partner.

As a part of this project, we are seeking a post-doctoral level scientist with the following key characteristics and skills:

- neuroscience-related, or biophysics doctoral degree

- demonstrated expertise in the recording of field potentials (ideally, using multi-electrode arrays)

- demonstrated research excellence in publications and presentations

- well-developed ability to write in English

- strong ability to work effectively within an inter-disciplinary team (involving biologists, physicists, and trainees at all levels)

- detail-oriented with strong organizational skills

- expertise with statistical tools typically used in biophysics and medical science

- training in basic molecular biology techniques (such as Western blotting) is a plus

Expected duties and responsibilities:

a) design and execute experiments

b) work with team members to identify experimental goals and the research plans needed to reach these targets

c) use a multi-electrode array (MED64) to perform field recording experiments from tissue slices acutely prepared from rodent brain

d) analyze and present data, prepare written reports, and manuscript drafts

e) analyze and present data for regular lab meetings

f) present results (in poster, or oral form) at scientific meetings

g) mentor junior trainees

h) serve as a role model for junior-level trainees by providing constructive feedback and maintaining a friendly disposition

The position is initially for a 12-month appointment, with the possibility of renewal for up to three years, depending on performance. Applications will be considered until a suitable applicant is found. The start date can be as early as May 1, 2021.

To apply, please send a cover letter (2 pages maximum), a CV (including your education, scientific skills, your research experience and list of publications) and contact information for at least three senior researchers familiar with your research credentials and expertise who could provide a letter of reference on your behalf.

Please send your application by email to: qneuro.uwaterloo@gmail.com with subject line: PDF Applicant QNeuro; Last name, First name.